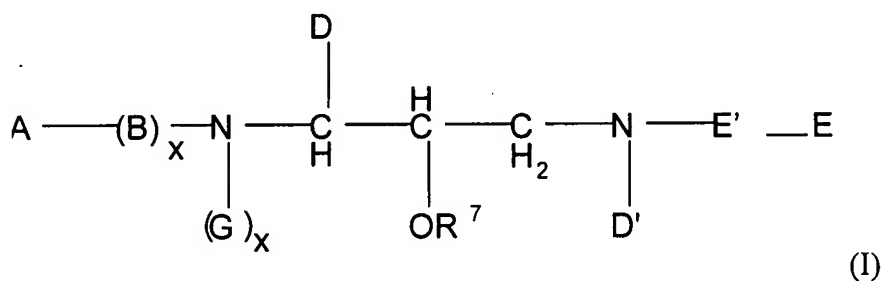


### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A compound of formula I:



or a pharmaceutically acceptable salt thereof, wherein:

E' is  $\text{--SO}_2\text{--}$ ;

A is selected from  $\text{--R}^1\text{--C}_1\text{--C}_6$  alkyl, which is optionally substituted with one or more groups independently selected from hydroxy,  $\text{C}_1\text{--C}_4$  alkoxy, Ht,  $\text{--O--Ht}$ ,  $\text{--NR}^2\text{--CO--N(R}^2\text{)}_2$ ,  $\text{--SO}_2\text{--R}^2$  or  $\text{--CO--N(R}^2\text{)}_2$ ; or  $\text{--R}^1\text{--C}_2\text{--C}_6$  alkenyl, which is optionally substituted with one or more groups independently selected from hydroxy,  $\text{C}_1\text{--C}_4$  alkoxy, Ht,  $\text{--O--Ht}$ ,  $\text{--NR}^2\text{--CO--N(R}^2\text{)}_2$  or  $\text{--CO--N(R}^2\text{)}_2$ ; or  $\text{R}^7$ ;

$\text{R}^1$  is  $\text{--O--C(O)--}$ ;

each Ht is independently selected from  $\text{C}_3\text{--C}_7$  cycloalkyl;  $\text{C}_5\text{--C}_7$  cycloalkenyl;  $\text{C}_6\text{--C}_{14}$  aryl; or a 5-7 membered saturated or unsaturated heterocycle, containing one or more heteroatoms selected from N, O, or S; wherein said aryl or said heterocycle is optionally fused to Q; and wherein any member of said Ht is optionally substituted with one or more substituents independently selected from oxo,  $\text{--OR}^2$ ,  $\text{SR}^2$ ,  $\text{--R}^2$ ,  $\text{--N(R}^2\text{)(R}^2\text{)}$ ,  $\text{--R}^2\text{--OH}$ ,  $\text{--CN}$ ,  $\text{--CO}_2\text{R}^2$ ,  $\text{--C(O)--N(R}^2\text{)}_2$ ,  $\text{--S(O)}_2\text{--N(R}^2\text{)}_2$ ,  $\text{--N(R}^2\text{)--C(O)--R}^2$ ,  $\text{--N(R}^2\text{)--C(O)O--R}^2$ ,  $\text{--C(O)--R}^2$ ,  $\text{--S(O)}_n\text{--}$

$R^2$ ,  $-OCF_3$ ,  $-S(O)_n-Q$ , methylenedioxy,  $-N(R^2)-S(O)_2(R^2)$ , halo,  $-CF_3$ ,  $-NO_2$ , Q,  $-OQ$ ,  $-OR^7$ ,  $-SR^7$ ,  $-R^7$ ,  $-N(R^2)(R^7)$  or  $-N(R^7)_2$ ;

each Q is independently selected from a 3-7 membered saturated, partially saturated or unsaturated carbocyclic ring system; or a 5-7 membered saturated, partially saturated or unsaturated heterocyclic ring containing one or more heteroatoms selected from O, N, or S; wherein Q is optionally substituted with one or more groups selected from oxo,  $-OR^2$ ,  $-R^2$ ,  $-SO_2R^2$ ,  $-SO_2-N(R^2)_2$ ,  $-N(R^2)_2$ ,  $-N(R^2)-C(O)-R^2$ ,  $-R^2-OH$ ,  $-CN$ ,  $-CO_2R^2$ ,  $-C(O)-N(R^2)_2$ , halo,  $-CF_3$ ;

each  $R^2$  is independently selected from H, or  $C_1-C_4$  alkyl; and wherein said alkyl, when not a substituent of Q, is optionally substituted with Q or  $-OR^3$ ; wherein when said  $R^2$  is an  $-OR^3$  substituted moiety, said  $R^3$  in  $-OR^3$  may not be  $-OR^2$  substituted;

B is absent;

each x is independently 0 or 1;

each  $R^3$  is independently selected from H, Ht,  $C_1-C_6$  alkyl,  $C_2-C_6$  alkenyl,  $C_2-C_6$  alkynyl,  $C_3-C_6$  cycloalkyl or  $C_5-C_6$  cycloalkenyl; wherein any member of said  $R^3$ , except H, is optionally substituted with one or more substituents selected from  $-OR^2$ ,  $-C(O)-NH-R^2$ ,  $-S(O)_n-N(R^2)(R^2)$ ,  $-N(R^2)_2$ ,  $-N(R^2)-C(O)-O(R^2)$ ,  $-N(R^2)-C(O)-N(R^2)$ ,  $-N(R^2)-C(O)-(R^2)$ , Ht,  $-CN$ ,  $-SR^2$ ,  $-CO_2R^2$ , or  $NR^2-C(O)-R^2$ ;

each n is independently 1 or 2;

G is H;

D is **benzyl**  ~~$C_4-C_6$  alkyl optionally substituted with Q;~~

D' is selected from  $C_1-C_{15}$  alkyl,  $C_2-C_{15}$  alkenyl or  $C_2-C_{15}$  alkynyl, each of which contains one or more substituents selected from oxo,  $-CF_3$ ,  $-OCF_3$ ,  $-NO_2$ , azido,  $-SH$ ,  $-N(R^3)-N(R^3)_2$ ,  $-O-N(R^3)_2$ ,  $-(R^3)N-O-(R^3)$ ,  $-CN$ ,  $-CO_2R^3$ ,  $-C(O)-N(R^3)_2$ ,  $-S(O)_n-N(R^3)_2$ ,  $-N(R^3)-C(O)-R^3$ ,  $-N(R^3)-C(O)-N(R^3)_2$ ,  $-N(R^3)-C(O)-S(R^3)$ ,  $-C(O)-R^3$ ,  $-N(R^3)-S(O)_n(R^3)$ ,  $-N(R^3)-S(O)_n-N(R^3)_2$ ,  $-S-NR^3-C(O)R^3$ ,  $-C(S)N(R^3)_2$ ,  $-C(S)R^3$ ,  $-NR^3-C(O)OR^3$ ,  $-O-C(O)OR^3$ ,  $-O-C(O)N(R^3)_2$ ,

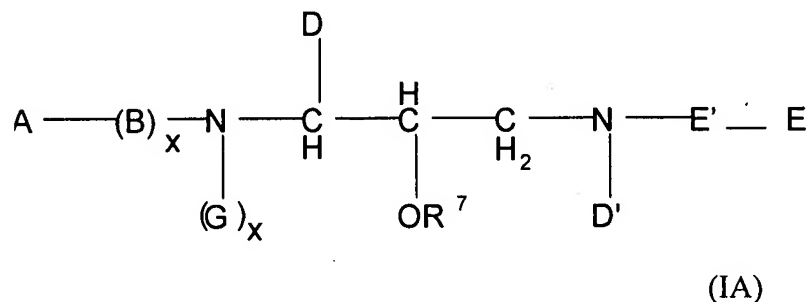
-NR<sup>3</sup>-C(S)R<sup>3</sup>, =N-OH, =N-OR<sup>3</sup>, =N-N(R<sup>3</sup>)<sub>2</sub>, =NR<sup>3</sup>, =NNR<sup>3</sup>C(O)N(R<sup>3</sup>)<sub>2</sub>, =NNR<sup>3</sup>C(O)OR<sup>3</sup>, =NNR<sup>3</sup>S(O)<sub>n</sub>-N(R<sup>3</sup>)<sub>2</sub>, -NR<sup>3</sup>-C(S)OR<sup>3</sup>, -NR<sup>3</sup>-C(S)N(R<sup>3</sup>)<sub>2</sub>, -NR<sup>3</sup>-C[=N(R<sup>3</sup>)]-N(R<sup>3</sup>)<sub>2</sub>, -N(R<sup>3</sup>)-C[=N-NO<sub>2</sub>]-N(R<sup>3</sup>)<sub>2</sub>, -N(R<sup>3</sup>)-C[=N-NO<sub>2</sub>]-OR<sup>3</sup>, -N(R<sup>3</sup>)-C[=N-CN]-OR<sup>3</sup>, -N(R<sup>3</sup>)-C[=N-CN]-(R<sup>3</sup>)<sub>2</sub>, -OC(O)R<sup>3</sup>, -OC(S)R<sup>3</sup>, -OC(O)N(R<sup>3</sup>)<sub>2</sub>, -C(O)N(R<sup>3</sup>)-N(R<sup>3</sup>)<sub>2</sub>, -O-C(O)N(R<sup>3</sup>)-N(R<sup>3</sup>)<sub>2</sub>, O-C(O)N(OR<sup>3</sup>)(R<sup>3</sup>), N(R<sup>3</sup>)-N(R<sup>3</sup>)C(O)R<sup>3</sup>, N(R<sup>3</sup>)-OC(O)R<sup>3</sup>, N(R<sup>3</sup>)-OC(O)R<sup>3</sup>, N(R<sup>3</sup>)-OC(O)R<sup>3</sup>, -OC(S)N(R<sup>3</sup>)<sub>2</sub>, -OC(S)N(R<sup>3</sup>)(R<sup>3</sup>), or PO<sub>3</sub>-R<sup>3</sup>;

E is selected from Ht; O-Ht; Ht-Ht; Ht fused with Ht; -O-R<sup>3</sup>; -N(R<sup>2</sup>)(R<sup>3</sup>); C<sub>1</sub>-C<sub>6</sub> alkyl optionally substituted with one or more groups selected from R<sup>4</sup> or Ht; C<sub>2</sub>-C<sub>6</sub> alkenyl optionally substituted with one or more groups selected from R<sup>4</sup> or Ht; C<sub>3</sub>-C<sub>6</sub> saturated carbocycle optionally substituted with one or more groups selected from R<sup>4</sup> or Ht; or C<sub>5</sub>-C<sub>6</sub> unsaturated carbocycle optionally substituted with one or more groups selected from R<sup>4</sup> or Ht;

each R<sup>4</sup> is independently selected from -OR<sup>2</sup>, -OR<sup>3</sup>, -SR<sup>2</sup>, -SOR<sup>2</sup>, -SO<sub>2</sub>R<sup>2</sup>, -CO<sub>2</sub>R<sup>2</sup>, -C(O)-NHR<sup>2</sup>, -C(O)-N(R<sup>2</sup>)<sub>2</sub>, -C(O)-NR<sup>2</sup>(OR<sup>2</sup>), -S(O)<sub>2</sub>-NHR<sup>2</sup>, halo, -NR<sup>2</sup>-C(O)-R<sup>2</sup>, -N(R<sup>2</sup>)<sub>2</sub> or -CN; and

each R<sup>7</sup> is hydrogen.

2. (Previously presented) The compound according to claim 1, having the formula IA:



wherein:

D' is selected from C<sub>1-15</sub> alkyl, C<sub>2-15</sub> alkenyl or C<sub>2</sub>.C<sub>15</sub> alkynyl; each of which is substituted with one to two –CN groups and is optionally substituted with C<sub>3</sub>.C<sub>8</sub> cycloalkyl.

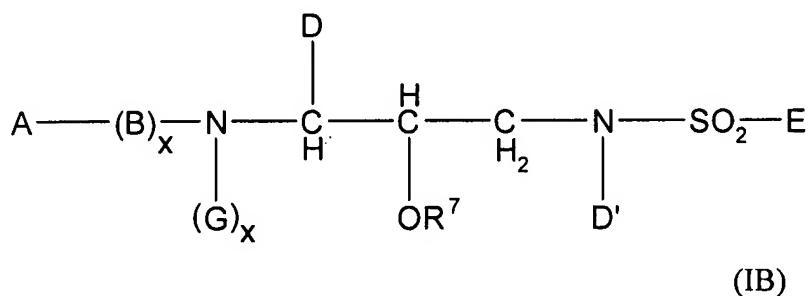
3. (Previously presented) The compound according to claim 2 wherein:

D' is selected from C<sub>1-15</sub> alkyl or C<sub>2-15</sub> alkenyl; each of which is substituted with one to two –CN groups and is optionally substituted with C<sub>3</sub>.C<sub>8</sub> cycloalkyl.

4. (Previously presented) The compound according to claim 2 wherein:

D' is C<sub>2</sub>.C<sub>15</sub> alkynyl which is substituted with one to two –CN groups and is optionally substituted with C<sub>3</sub>.C<sub>8</sub> cycloalkyl.

5. (Previously presented) The compound according to claim 1 having the formula IB:



wherein:

D' is selected from C<sub>1</sub>.C<sub>15</sub> alkyl, C<sub>2</sub>.C<sub>15</sub> alkenyl or C<sub>2</sub>.C<sub>15</sub> alkynyl, each of which contains one or more substituents selected from oxo, –CF<sub>3</sub>, –OCF<sub>3</sub>, –NO<sub>2</sub>, azido, –SH, –N(R<sup>3</sup>)–N(R<sup>3</sup>)<sub>2</sub>, –O–N(R<sup>3</sup>)<sub>2</sub>, –(R<sup>3</sup>)N–O–(R<sup>3</sup>), –CO<sub>2</sub>R<sup>3</sup>, –C(O)–N(R<sup>3</sup>)<sub>2</sub>, –S(O)<sub>n</sub>–N(R<sup>3</sup>)<sub>2</sub>, –N(R<sup>3</sup>)–C(O)–R<sup>3</sup>, –N(R<sup>3</sup>)–C(O)–N(R<sup>3</sup>)<sub>2</sub>, –N(R<sup>3</sup>)–C(O)–S(R<sup>3</sup>), –C(O)–R<sup>3</sup>, –N(R<sup>3</sup>)–S(O)<sub>n</sub>(R<sup>3</sup>), –N(R<sup>3</sup>)–S(O)<sub>n</sub>–N(R<sup>3</sup>)<sub>2</sub>, –S–NR<sup>3</sup>–C(O)R<sup>3</sup>, –C(S)N(R<sup>3</sup>)<sub>2</sub>, –C(S)R<sup>3</sup>, –NR<sup>3</sup>–C(O)OR<sup>3</sup>, –O–C(O)OR<sup>3</sup>, –O–C(O)N(R<sup>3</sup>)<sub>2</sub>, –NR<sup>3</sup>–

$C(S)R^3$ ,  $=N-OH$ ,  $=N-OR^3$ ,  $=N-N(R^3)_2$ ,  $=NR^3$ ,  $=NNR^3C(O)N(R^3)_2$ ,  $=NNR^3C(O)OR^3$ ,  
 $=NNR^3S(O)_n-N(R^3)_2$ ,  $-NR^3-C(S)OR^3$ ,  $-NR^3-C(S)N(R^3)_2$ ,  $-NR^3-C[=N(R^3)]-N(R^3)_2$ ,  $-N(R^3)-$   
 $C[=N-NO_2]-N(R^3)_2$ ,  $-N(R^3)-C[=N-NO_2]-OR^3$ ,  $-N(R^3)-C[=N-CN]-OR^3$ ,  $-N(R^3)-C[=N-CN]-$   
 $(R^3)_2$ ,  $-OC(O)R^3$ ,  $-OC(S)R^3$ ,  $-OC(O)N(R^3)_2$ ,  $-C(O)N(R^3)-N(R^3)_2$ ,  $-O-C(O)N(R^3)-N(R^3)_2$ ,  $O-$   
 $C(O)N(OR^3)(R^3)$ ,  $N(R^3)-N(R^3)C(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $-$   
 $OC(S)N(R^3)_2$ ,  $-OC(S)N(R^3)(R^3)$ , or  $PO_3-R^3$ .

6. (Previously presented) The compound according to claim 5 wherein:

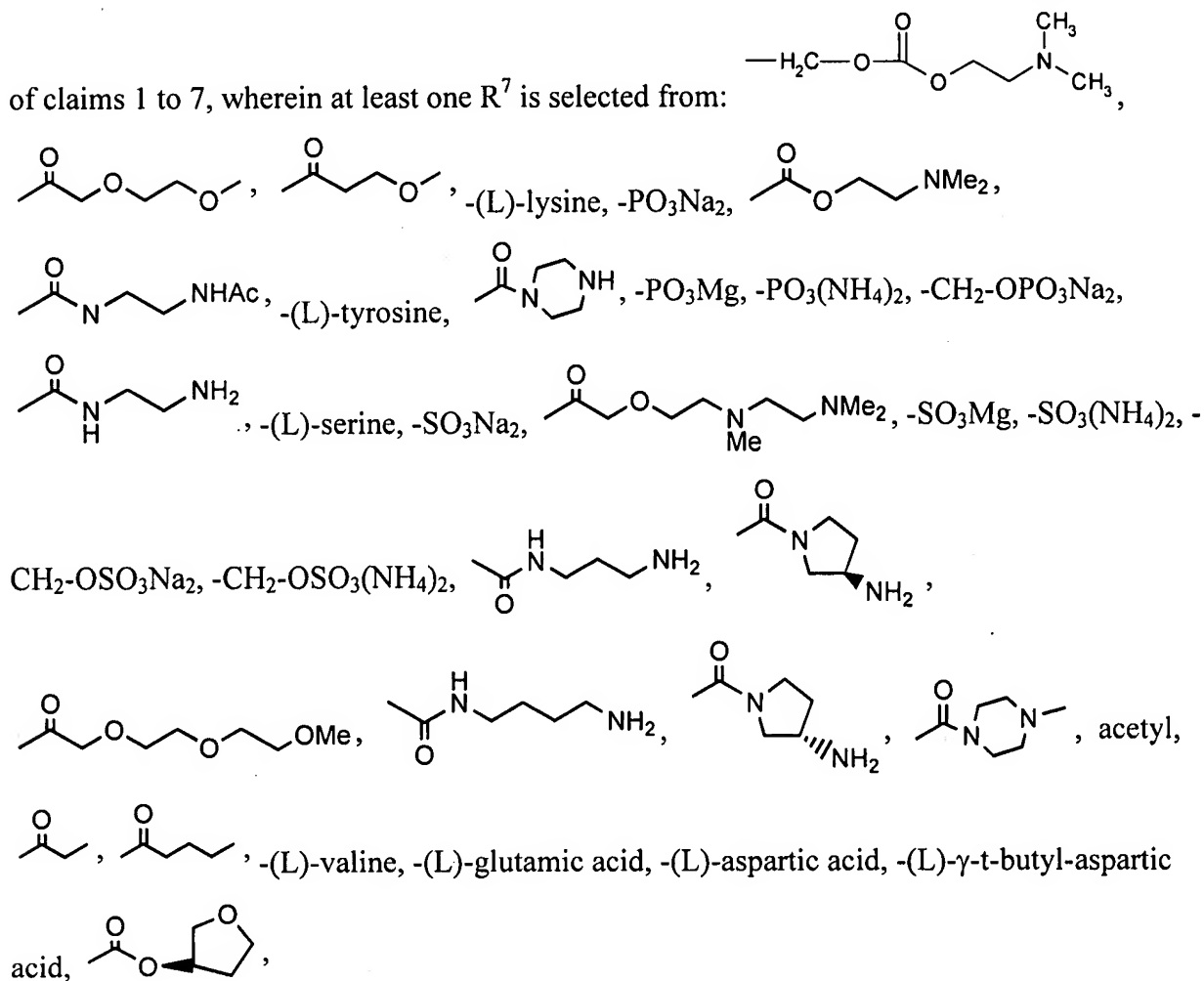
$D'$  is selected from  $C_1.C_{15}$  alkyl or  $C_2.C_{15}$  alkenyl, each of which contains one or more  
 substituents selected from oxo,  $-CF_3$ ,  $-OCF_3$ ,  $-NO_2$ , azido,  $-N(R^3)-N(R^3)_2$ ,  $-O-N(R^3)_2$ ,  $-(R^3)N-$   
 $O-(R^3)$ ,  $-N(R^3)-C(O)-N(R^3)_2$ ,  $-N(R^3)-C(O)-S(R^3)$ ,  $-C(O)-R^3$ ,  $-N(R^3)-S(O)_n(R^3)$ ,  $-N(R^3)-S(O)_n-$   
 $N(R^3)_2$ ,  $-S-NR^3-C(O)R^3$ ,  $-C(S)N(R^3)_2$ ,  $-C(S)R^3$ ,  $-NR^3-C(O)OR^3$ ,  $-O-C(O)OR^3$ ,  $-O-C(O)N(R^3)_2$ ,  
 $-NR^3-C(S)R^3$ ,  $=N-OH$ ,  $=N-OR^3$ ,  $=N-N(R^3)_2$ ,  $=NR^3$ ,  $=NNR^3C(O)N(R^3)_2$ ,  $=NNR^3C(O)OR^3$ ,  
 $=NNR^3S(O)_n-N(R^3)_2$ ,  $-NR^3-C(S)OR^3$ ,  $-NR^3-C(S)N(R^3)_2$ ,  $-NR^3-C[=N(R^3)]-N(R^3)_2$ ,  $-N(R^3)-$   
 $C[=N-NO_2]-N(R^3)_2$ ,  $-N(R^3)-C[=N-NO_2]-OR^3$ ,  $-N(R^3)-C[=N-CN]-OR^3$ ,  $-N(R^3)-C[=N-CN]-$   
 $(R^3)_2$ ,  $-OC(O)R^3$ ,  $-OC(S)R^3$ ,  $-OC(O)N(R^3)_2$ ,  $-C(O)N(R^3)-N(R^3)_2$ ,  $-O-C(O)N(R^3)-N(R^3)_2$ ,  $O-$   
 $C(O)N(OR^3)(R^3)$ ,  $N(R^3)-N(R^3)C(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  
 $-OC(S)N(R^3)_2$ ,  $-OC(S)N(R^3)(R^3)$ , or  $PO_3-R^3$ ;  $C_2.C_{15}$  alkynyl which contains one or more  
 substituents selected from oxo,  $-CF_3$ ,  $-OCF_3$ ,  $-NO_2$ , azido,  $-SH$ ,  $-N(R^3)-N(R^3)_2$ ,  $-O-N(R^3)_2$ ,  
 $-(R^3)N-O-(R^3)$ ,  $-CO_2R^3$ ,  $-C(O)-N(R^3)_2$ ,  $-S(O)_n-N(R^3)_2$ ,  $-N(R^3)-C(O)-R^3$ ,  $-N(R^3)-C(O)-N(R^3)_2$ ,  
 $-N(R^3)-C(O)-S(R^3)$ ,  $-C(O)-R^3$ ,  $-N(R^3)-S(O)_n(R^3)$ ,  $-N(R^3)-S(O)_n-N(R^3)_2$ ,  $-S-NR^3-C(O)R^3$ ,  
 $-C(S)N(R^3)_2$ ,  $-C(S)R^3$ ,  $-NR^3-C(O)OR^3$ ,  $-O-C(O)OR^3$ ,  $-O-C(O)N(R^3)_2$ ,  $-NR^3-C(S)R^3$ ,  $=N-OH$ ,  
 $=N-OR^3$ ,  $=N-N(R^3)_2$ ,  $=NR^3$ ,  $=NNR^3C(O)N(R^3)_2$ ,  $=NNR^3C(O)OR^3$ ,  $=NNR^3S(O)_n-N(R^3)_2$ ,  $-NR^3-$   
 $C(S)OR^3$ ,  $-NR^3-C(S)N(R^3)_2$ ,  $-NR^3-C[=N(R^3)]-N(R^3)_2$ ,  $-N(R^3)-C[=N-NO_2]-N(R^3)_2$ ,  $-N(R^3)-$   
 $C[=N-NO_2]-OR^3$ ,  $-N(R^3)-C[=N-CN]-OR^3$ ,  $-N(R^3)-C[=N-CN]-(R^3)_2$ ,  $-OC(O)R^3$ ,  $-OC(S)R^3$ ,  $-$   
 $OC(O)N(R^3)_2$ ,  $-C(O)N(R^3)-N(R^3)_2$ ,  $-O-C(O)N(R^3)-N(R^3)_2$ ,  $O-C(O)N(OR^3)(R^3)$ ,  $N(R^3)-$   
 $N(R^3)C(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $N(R^3)-OC(O)R^3$ ,  $-OC(S)N(R^3)_2$ ,  
 $-OC(S)N(R^3)(R^3)$ , or  $PO_3-R^3$ .

7. (Previously presented) The compound according to claim 5 wherein:

D' is selected from C<sub>1</sub>-C<sub>15</sub> alkyl or C<sub>2</sub>-C<sub>15</sub> alkenyl, each of which contains one or more substituents selected from -SH, -CO<sub>2</sub>R<sup>3</sup>, -C(O)-N(R<sup>3</sup>)<sub>2</sub>, -S(O)<sub>n</sub>-N(R<sup>3</sup>)<sub>2</sub> or -N(R<sup>3</sup>)-C(O)-R<sup>3</sup>.

8. (Canceled)

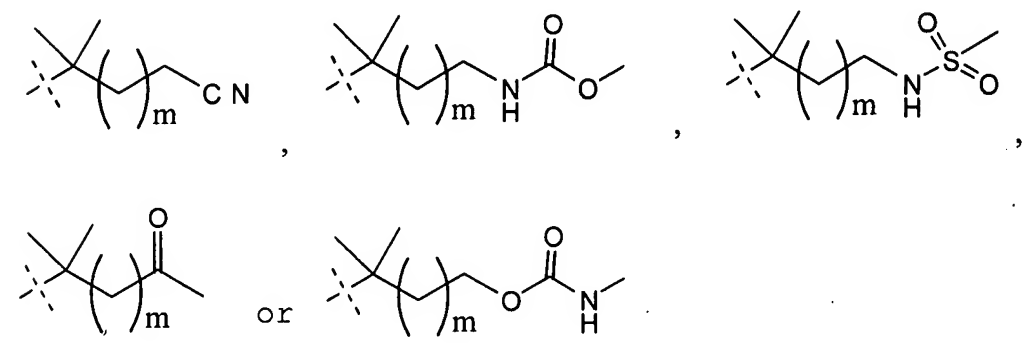
9. (Withdrawn – Currently amended) The compound according to any one



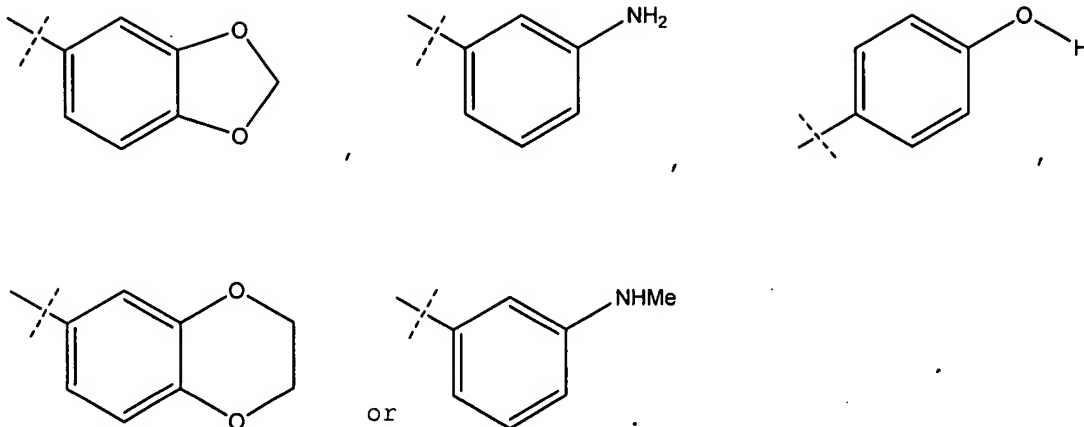
[illegible]

10-11. (Canceled)

R'' is selected from

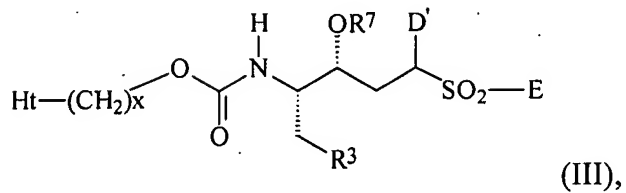


from



14. (Withdrawn) The compound according to claim 10, wherein  $R^7$  is  $-\text{PO}_3^{2-}$

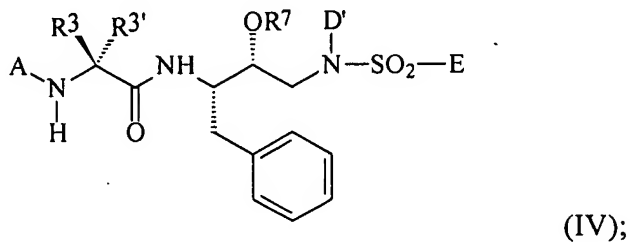
15. (Currently amended) The compound according to claim 1, having the formula III:



wherein  $x = 1$ ; **and**

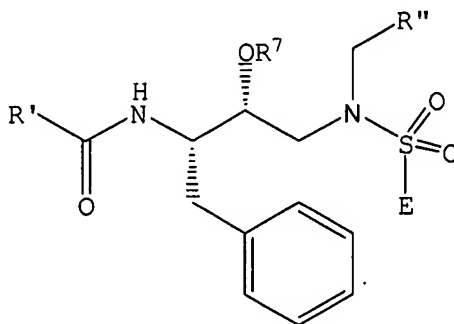
**$R^3$  is phenyl.**

16. (Withdrawn) The compound according to claim 1, having the formula IV:



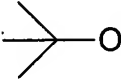
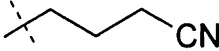
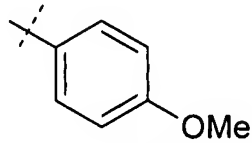
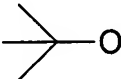
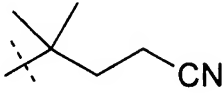
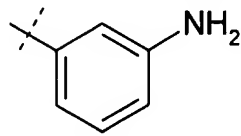
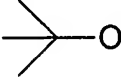
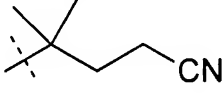
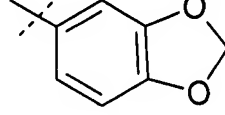
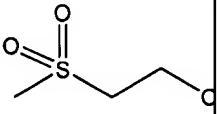
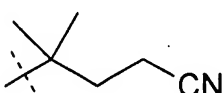
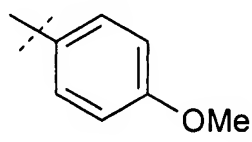
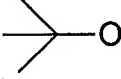
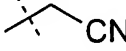
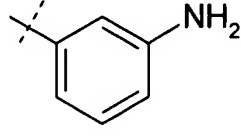
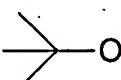
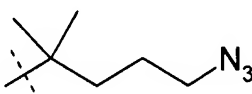
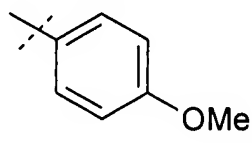
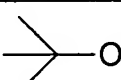
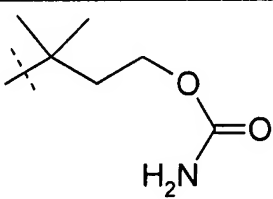
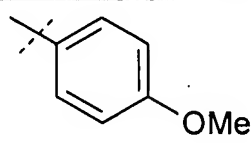
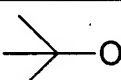
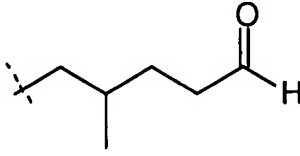
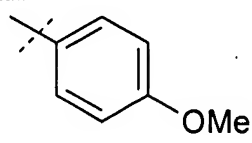
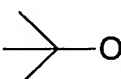
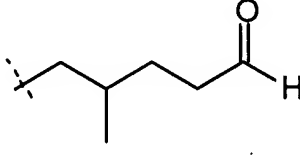
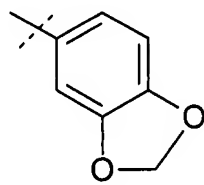
wherein  $R^{3'}$  is selected from H, Ht,  $C_1$ - $C_6$  alkyl,  $C_2$ - $C_6$  alkenyl,  $C_3$ - $C_6$  cycloalkyl or  $C_5$ - $C_6$  cycloalkenyl; wherein any member of said  $R^3$ , except H, is optionally substituted with one or more substituents selected from  $-OR^2$ ,  $-C(O)-NH-R^2$ ,  $-S(O)_n-N(R^2)(R^2)$ ,  $-N(R^2)_2$ ,  $-N(R^2)-C(O)-O(R^2)$ ,  $-N(R^2)-C(O)-N(R^2)$ ,  $-N(R^2)-C(O)-(R^2)$ ,  $-N(R^2-OR^2)_2$ ,  $-C(O)-Ht$ , Ht,  $-CN$ ,  $-SR^2$ ,  $-CO_2R^2$ , or  $NR^2-C(O)-R^2$ .

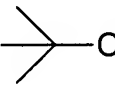
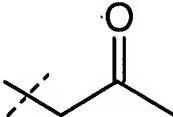
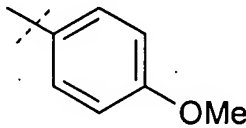
17. (Currently amended) The compound according to claim 1, wherein said compound is selected from any one of compound numbers: 1, 2, 3, 4, 5, 6, 22, 127, 203, 234, 277, 278, **and** 279, ~~363~~, and 364:

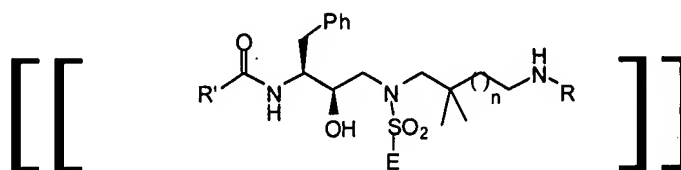


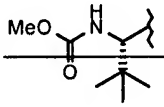
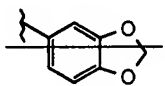
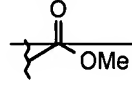
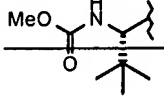
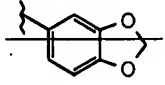
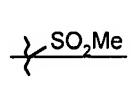
wherein  $R^7$  is H; and

Compound	$R'$	$R''$	E
1			
2			
3			

Compound	R'	R''	E
4			
5			
6			
22			
127			
203			
234			
277			
278			

Compound	R'	R''	E
279			



Compound	R'	E	n	R
363			3	
364			3	

18-22. (Canceled)

23. (Currently amended) A composition comprising a compound according to any one of claims 1-7, [[10,]] 12, 13, 15, and 17 or a pharmaceutically acceptable salt thereof in a therapeutically effective amount, and a pharmaceutically acceptable carrier.

24. (Canceled)

25. (Original) The composition according to claim 23, wherein said composition is formulated as a pharmaceutically acceptable, orally available tablet or capsule.

26. (Previously presented) A method of treating an HIV virus infection in a human comprising the step of administering to said human a composition according to claim 23.

27-29. (Canceled)

30. (Previously presented) A method of treating an HIV virus infection in a human comprising the step of administering to said human a composition according to claim 25.

31. (Canceled)